The remote controller of the above-embodiment may include all input devices.

Next, the single program MPEG2-TS transfer via the IEEE 1394 serial bus, during the isochronous transfer mode, will be described.

(I) Recording Mode

The extra header inserter/remover **114** inserts a time stamp to allow the single program MPEG2-TS packets of 188 bytes including the corrected PAT, output from the single transport stream extractor **113**, to be transferred via the IEEE 1394 interface. Then, the extra header inserter/remover **114** divides each TS packet, having the time stamp, into a block unit of a predetermined size (24 bytes), to constitute a data block packet for the IEEE 1394 transfer into which a CIP header has been inserted. The link layer **115** adds an isochronous header to the data block packet including the CIP header for the IEEE 1394 transfer, output from the extra header inserter/remover **114** to make the data block packet into an isochronous packet. The link layer **115** then converts the isochronous packet into a serial signal. The physical layer **116** converts the serial signal into an electrical signal.

The electrical signal is input to the physical layer **201** of the digital interface of the HD-VCR, via the IEEE 1394 cable **300**. The physical layer **201** converts the electrical signal into digital data. The link layer **202** converts the digital data into parallel data of a 1-byte unit and then removes the isochronous header. The extra header inserter/remover **204** removes the extra header (CIP header), and makes the data into a TS packet to output to the HD-VCR signal processor **205**. The HD-VCR signal processor **205** parses the corrected PAT from the single program MPEG2-TS packetized, and parses the PMT PID from the parsed PAT. Finally, all packets of the intended program are extracted, by parsing A_PID and V_PID from the PMT PID, and then recorded on a tape.

(II) Playback Mode

The HD-VCR signal processor **205** processes video and audio signals reproduced from the tape into TS packet. The extra header inserter/remover **204** inserts a time stamp into each TS packet processed by the HD-VCR signal processor **205**, to allow the packet to be transferred via the IEEE 1394 interface. Then, the extra header inserter/remover **204** divides each TS packet having the time stamp into a block unit of a predetermined size (24bytes), to constitute a data block packet for the IEEE 1394 transfer into which a CIP header has been inserted. The link layer **202** adds an isochronous header to the data block packet including the CIP header for the IEEE 1394 transfer, output from the extra header inserter/remover **204** to make the data block packet into an isochronous packet. The link layer **202** then converts the isochronous packet into a serial signal. The physical layer **201** converts the serial signal into an electrical signal.

The electrical signal is input to the physical layer **116** of the digital interface of the ATV, via the IEEE 1394 cable **300**. The physical layer **116** converts the electrical signal into digital data. The link layer **115** converts the digital data isochronous packet into parallel data of a 1-byte unit and removes the isochronous header. The extra header inserter/remover **114** removes the extra header (CIP header), and makes the data into a TS packet to output it to the PAT parser **104**. The PMT parser **105** receives the PMT PID of the PAT, parsed by the PAT parser **104** based on the reproduced MPEG2-TS, to extract A_PID and V_PID. The video decoder **106** and the audio decoder **107** decode the video and audio signals according to the A_PID and the V_PID, to output the results to a display and a speaker, respectively.

The present invention adopts the MPEG2-TS as a transfer format. The apparatus for transferring a single program transport stream and the method therefor, according to the present invention, can be applied to all recording/reproducing devices adopting an MPEG2-TS demultiplexer/decoder, e.g., DVC having an MPEG2 encoder/decoder and D-VHS for the MPEG2-TS recording.

As described above, according to the apparatus is for transferring a single program transport stream and the method therefor, of the present invention, a single program transport stream corresponding to a program number selected by a user is transferred with a corrected PAT from the ATV to the HD-VCR, so that various digital A/V devices can be universally controlled by one apparatus, without the transfer of the program number. Also, the ATV provides the on-screen graphic (OSG), resulting in an OSG of consistent appearance.

What is claimed is:

1. A multi-media system for transferring a single program transport stream comprising:

an input device for entering a program number of an intended program;

a receiver including a first digital interface, the receiver receiving a multi-program transport stream and, when extracting only a single program transport stream of a program corresponding to the program number from the received multi-program transport stream, transferring the extracted single program transport stream together with a corrected program association table (PAT) including the program number and program information corresponding to the program number; and

a recording/reproducing device including a second digital interface, for receiving the transferred extracted single program transport stream together with the corrected program association table and recording the single program transport stream transferred from the receiver via the second digital interface, for reproducing the recorded single program transport stream, and for transferring the reproduced single program transport stream to the receiver via the first digital interface, wherein receiving the single program transport stream together with the corrected program association table by the recording/reproducing device obviates need for a selection device associated with the recording/reproducing device to select a program for recording.

2. The multi-media system of claim 1, wherein the input device is a remote controller.

3. A multi-media system for transferring a single program transport stream, including at least a receiver for receiving a multi-program transport stream and a recording/reproducing device for recording/reproducing a selected single program transport stream,

wherein the receiver comprises:

an input device for entering a program number of an intended program;

a first signal processor for parsing a program association table (PAT) from the received multi-program transport stream, and for separating a video stream and an audio stream of an intended program, based on the parsed PAT, to decode a video signal and an audio signal, respectively;

a PAT corrector for correcting the parsed PAT to output a corrected PAT including the program number and program information corresponding to the program number;

a single transport stream extractor, which, when extracting only the selected single transport stream corre-

sponding to the program number from the received multi-program transport stream, outputs the selected single program transport stream, together with the corrected PAT; and

a first digital interface for transferring the selected single program transport stream and said corrected PAT as isochronous packets, and

wherein the recording/reproducing device comprises:

a second digital interface for depacketizing the single program transport stream transferred as the isochronous packets via the first digital interface; and

a second signal processor for recording the selected single program transport stream, provided by the second digital interface, onto a recording medium, and for providing a reproduced single program transport stream reproduced from the recording medium to the second digital interface, wherein said transferring of said selected single program transport stream and said corrected PAT obviates need for a selection device associated with the recording/reproducing device to select a program for recording.

4. The multi-media system of claim 3, wherein the input device is a remote controller.

5. The multi-media system of claim 4, further comprising at least one additional recording/reproducing device connected to the receiver, wherein all of the recording/reproducing devices are controlled by the remote controller.

6. The multi-media system of claim 3, wherein the first and second digital interfaces are an IEEE 1394 interface, respectively.

7. The multi-media system of claim 6, wherein the receiver further comprises a first extra header inserter/remover for inserting an extra header into the seleted single transport stream output from the single transport stream extractor, to form a data block packet for the IEEE 1394 transfer, and for removing the extra header inserted into the reproduced data block packet provided by the first digital interface for the IEEE 1394 transfer.

8. The multi-media system of claim 6, wherein the recording/reproducing device further comprises a second extra header inserter/remover for removing an extra header inserted into a data block packet provided by the second digital interface for the IEEE 1394 transfer, and for inserting the extra header into the reproduced single program transport stream output by the second signal processor, to form a data block packet for the IEEE 1394 transfer.

9. The multi-media system of claim 3, wherein the receiver further comprises a switching controller for selectively outputting the received multi-program transport stream to the first signal processor in a display mode, the selected single program transport stream output from the single transport stream extractor to the first digital interface in a recording mode, and the reproduced single program transport stream reproduced by the recording/reproducing device and received via the first digital interface to the first signal processor in a playback mode, according to a mode switching control signal.

10. The multi-media system of claim 3, wherein the first signal processor further comprises:

a program guide parser for parsing program guide information from the received multi-program transport stream; and

an on-screen graphic (OSG) generator for displaying the parsed program guide information on an OSG display.

11. The multi-media system of claim 10, wherein the OSG generator generates an OSG by mixing the program guide information with a graphic signal of a background screen.

12. The multi-media system of claim 10, wherein the OSG generator generates an OSG by mixing the program guide information with the decoded video signal.

13. The multi-media system of claim 10, wherein the second signal processor does not, in itself, parse program guide information from the selected single program transport stream transferred via the second digital interface.

14. The multi-media system of claim 3, wherein the first signal processor further comprises:

a program guide parser for parsing program guide information from the received multi-program transport stream; and

an on-screen display (OSD) generator for displaying the parsed program guide information on an OSD.

15. A method or transferring a single program transport stream from a receiver with a digital interface for receiving a multi-program transport stream to a recording/reproducing device with a digital interface for recording/reproducing a single program transport stream, the method comprising the steps of:

(a) providing a program number of an intended program to be recorded;

(b) correcting a program association table (PAT) from a received multi-program transport stream to output a corrected PAT including a program number corresponding to the program number provided in the step (a) and program information corresponding to the program number; and

(c) extracting a single program transport stream corresponding to the program number provided in the step (a) from the received multi-program transport stream, and transferring the extracted single program transport stream together with the corrected PAT, to the recording/reproducing device,

wherein receiving the single program transport stream together with the corrected program association table by the recording/reproducing device obviates need for a selection device associated with the recording/reproducing device to select a program for recording.

16. The method of claim 15, wherein the step (a) comprises the steps of:

(a1) parsing program guide information within the transport stream;

(a2) displaying the parsed program guide information; and

(a3) providing the program number of an intended program according to the displayed program guide information.

17. The method of claim 16, wherein the step (a2) comprises displaying the parsed program guide information on an OSG display.

18. The method of claim 16, wherein the step (a2) comprises displaying the parsed program guide information on an OSD display.

19. The method of claim 15, further comprising the steps of:

(d) providing a program number of an intended program to be reproduced; and

(e) transferring to the receiver a single program transport stream reproduced by the recording/reproducing device, corresponding to the program number provided in the step (d).

20. A multi-media system for transferring a single program transport stream comprising:

an input device for entering a program number of an intended program; and

a receiver including a digital interface, for receiving a multi-program transport stream and extracting a single program transport stream of a program corresponding to the program number from the received multi-program transport stream, and for transferring the extracted single program transport stream together with a corrected program association table (PAT) including the program number and program information corresponding to the program number,

wherein transferring the extracted single program transport stream together with the corrected program association table to a recording/reproducing device obviates need for a selection device associated with the recording/reproducing device to select a program for recording.

21. A multi-media system for transferring a single program transport stream, including a receiver for receiving a multi-program transport stream, the receiver comprising:

an input device for entering a program number of an intended program;

a first signal processor for parsing a program association table (PAT) from the received multi-program transport stream, and for separating a video stream and an audio stream of an intended program, based on the parsed PAT, to decode a video signal and an audio signal, respectively;

a PAT corrector for correcting the parsed PAT to output a corrected PAT including the program number and program information corresponding to the program number;

a single transport stream extractor for extracting the selected single transport stream corresponding to the program number from the received multi-program transport stream, to output the selected single program transport stream, together with the corrected PAT; and

a digital interface for transferring the selected single program transport stream,

wherein transferring the selected single program transport stream together with the corrected program association table to a recording/reproducing device obviates need for a selection device associated with the recording/reproducing device to select a program for recording.

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